REMARKS

In complete response to the outstanding Official Action of August 12, 2009, on the above-identified application, reconsideration is respectfully requested. Claims 27 and 29 - 45 remain in this application. It is presumed that the Examiner is reopening prosecution after the filing of an Appeal Brief, to enter a new ground of rejection, per M.P.E.P. Section 1208.02, since the Examiner did not identify this as recommended in this same section.

Claim Rejections Under 35 U.S.C. § 103

Claims 27, and 29 - 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nataraj '472 in view of Jinnouchi '027. Applicant respectfully submits that claims 27, and 29 - 45 are not unpatentable over Nataraj '472 in view of Jinnouchi '027.

The Examiner notes that Nataraj does not teach the temperature range of between 871° and 1300 ° C for the oxidizing mixture prior to the reforming step. The Examiner then notes that Nataraj "broadly teaches heating an oxygen-containing oxidant gas and introducing the heated gas feed into a mixed conducting membrane reactor".

The Examiner then notes that Jinnouchi '027 "teaches that the raw gases in a steam reforming reaction can be brought up to reaction temperatures which are between 750 and 1000 degrees C". The only passage that the Examiner cites (page 2, line 46 to page 3, line 7) discusses the heating of a carbon-dioxide containing liquid with various hot gas path streams within the overall gasification system, and does not include the above teaching. This teaching may be found in a different section (page 6, lines 9 to 13).

One skilled in the art would recognize that this passage is ambiguous at best. Herein it states that, with respect to the various gas streams being discussed, "each of which (gas stream) is being raised in temperature up to the above-mentioned reaction temperature of this 'reforming reaction'". The gas streams that are being discussed here are "the raw hydrocarbon gases (vapor), the steam, a mixture of the raw hydrocarbon gases (vapor) and the steam". There is no mention of heating the oxidizing gas at all.

It is also not clear from the rest of the description and the drawing, where or how such temperature raising is accomplished. Figure one, and the description, show the hot water stream (20) that is extracted fro the syngas cooler (5), blending with the warmed

carbon dioxide containing solution (18), entering containing solution heater (6), then entering containing solution regenerator (3). It is the residual water stream (25) that then heats the carbon dioxide containing solution (18) above. One skilled in the art, would see that nowhere in this scheme is any stream being heated to any temperature remotely approaching 1000 C (approximately 1830 F).

The skilled artisan would typically read the above passage referring the gas streams "being raised in temperature" up to the reaction temperature of the reforming reaction to indicate that this temperature rise is taking place at the last seconds, within the reformer itself, as these streams approach and enter the catalyst filled tubes. The skilled artisan would recognize the inherent difficulty in achieving and carefully maintaining these temperatures *within* the controlled environment of the reaction furnace, and recognize that nowhere outside the reaction furnace would the energy be expended to achieve these temperatures.

Additionally, as Applicants have respectfully point out before, the disclosure of Nataraj '472 explicitly points out that:

> "Heated oxidant **41** and heated partially reformed intermediate gas **25** are introduced into respective oxidant and reactant inlets to mixed conducting membrane reactor **43**. Heated oxidant **41** is at a temperature preferably within .±200 ° F of the temperature of heated partially reformed intermediate gas **25** at the inlet to mixed conducting membrane reactor **43**. The gas temperature at the reactant inlet is in the range of about 1100 to 1400 ° F. (594 to 760 ° C)." (*column 12, lines 53 – 60*)

Hence, according to the teaching of Nataraj, *the heated oxidant stream 41 should be no hotter than 871 °C* (i.e. 760 ° C + 111 ° C), and hence neither teaches nor suggests the 1000 ° C temperature required by claim 27 as currently amended. Combining Nataraj with a secondary reference that does heat the oxidant stream to over 871 C would teach away from the explicit requirements and limitation of Nataraj, hence one skilled in the art would not consider combining these references.

Therefore, all the features of claim 27 are neither taught nor suggested by Nataraj '474 or Jinnouchi '027, either alone or in combination. Claims 28 – 40 and 42 - 45 are dependent upon claim 27. Hence this rejection, as pertains to claim 27, and claims 28 – 40 and 42 - 45 which are dependent upon claim 27, is moot and should be withdrawn.

Claim 41 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nataraj '472 in view of Jinnouchi '027 and further in view of Prasad '984. Applicant respectfully submits that claim 41 is not unpatentable over Nataraj '472 in view of Jinnouchi '027, and further in view of Prasad '984.

Therefore, all the features of claim 27 are neither taught nor suggested by Nataraj '474, Jinnouchi '027, or Prasad '984, either alone or in any combination. Claim 41 is dependent upon claim 27. Hence this rejection, as pertains to claim 27, and claim 41 which are dependent upon claim 27, is moot and should be withdrawn. .

Claims 27, and 29 - 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nataraj '472 in view of Steynberg '086. Applicant respectfully submits that claims 27, and 29 - 45 are not unpatentable over Nataraj '472 in view of Steynberg '086.

The Examiner notes that Nataraj does not teach the temperature range of between 871° and 1300 ° C for the oxidizing mixture prior to the reforming step. The Examiner then notes that Nataraj "broadly teaches heating an oxygen-containing oxidant gas and introducing the heated gas feed into a mixed conducting membrane reactor".

The Examiner then notes that Steynberg '086 "teaches the heating of the synthesis gas to between 10000 C and 1200 degrees C". The Examiner then states that "it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Steynberg with the teachings of Nataraj because Steynberg teaches the use of the waste heat for electrical energy in the process." Applicants respectfully point out that Steynberg fails to remedy the above admitted deficiency in Nataraj. The fact that Steynberg teaches to heat the syngas *leaving* the reactor to over 1000 C, has absolutely no relationship to the temperature of the oxidant stream that is *entering* the reactor.

Therefore, all the features of claim 27 are neither taught nor suggested by Nataraj '474 or Steynberg '086, either alone or in combination. Claims 28 – 40 and 42 - 45 are dependent upon claim 27. Hence this rejection, as pertains to claim 27, and claims 28 – 40 and 42 - 45 which are dependent upon claim 27, is moot and should be withdrawn.

CONCLUSION

In view of the current amendments, the present application now stands in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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